



**FOODBORNE OUTBREAK AMONG STAFF AND RESIDENTS
AT AN ASSISTED LIVING FACILITY
GREENWOOD COUNTY, KANSAS
APRIL, 2005**

Report Date:

May 2005

Investigators:

Greenwood County Health Department
Deina Rockhill
Shannon Hughes
Cathy Coon

Author:

Jennifer M. Hill, MPH, Epidemiologist
Epidemiologic Services Section
Bureau of Epidemiology and Disease Prevention
Kansas Department of Health and Environment

BACKGROUND

On April 5, 2005, Greenwood Local Health Department (GWLHD) notified the Epidemiologic Services Section (ESS) about a potential outbreak in an assisted living facility (Facility X). GWLHD had been informed that four persons from the same facility were hospitalized and that 6 additional persons in the facility were also ill.

GWLHD began a line list of all residents and staff at Facility X. Common symptoms of ill persons included nausea, vomiting, and diarrhea. It was determined that only two of the four hospitalized persons had symptoms consistent with the outbreak. By April 6, 23 persons were ill. At Facility X, there are 25 residents and 16 staff members. During the time of the outbreak one staff member was on vacation and was excluded from the analysis.

METHODS

Epidemiologic

Data collected from the initial line list and the epidemiological curve provided information for development of a food questionnaire. The case definition was: any person who lives or works at Facility X and became ill on or after March 30, 2005 with at least two of three symptoms (diarrhea, nausea, vomiting).

RESULTS

Epidemiologic

Of the thirty-seven questionnaires returned, 36 persons either worked or lived at Facility X during the time period analyzed. One person was on vacation during the time of the outbreak. Food history questionnaires were not collected from the four individuals that had been hospitalized but symptoms and onset date information was collected. The individuals in the cohort were predominately female (85%) and the median age was 70.3 years. The ill and non-ill groups do not differ by gender, age, or occupation (Appendix 1).

The three most common symptoms reported were diarrhea, nausea, and vomiting (Table 1). Two persons were hospitalized due to these three symptoms. Incubation time was not calculated since specific date and time of exposure was not identified. Based on the recovery dates of 6 cases (27%), the recovery time was 1.5 days.

Table 1: Distribution of symptoms in individuals who met the case definition among residents and staff members in Greenwood County, April 2005.

Symptom	Number (%)
Diarrhea	20 (90.9)
Nausea	18 (81.8)
Vomiting	17 (77.3)
Fever	11 (50.0)
Cramps	8 (36.4)
Chills	7 (31.8)

The overall attack rate was 55% (22 ill persons / 40 total persons). Food history was analyzed from the returned questionnaires. No specific food items, meals, or days showed an increased risk of becoming ill.

Laboratory

Stool specimens were collected and tested negative for enteric bacterial organisms. The specimens were not tested for norovirus because the media in which they were collected was not suitable.

Environmental

A layout map of Facility X was obtained. Facility X has four sections: North, South, West, and Center. Nine (60%) of 15 staff members reported working in all sections of Facility X. Residential cases were plotted on the map and no section had more cases than the others.

DISCUSSION

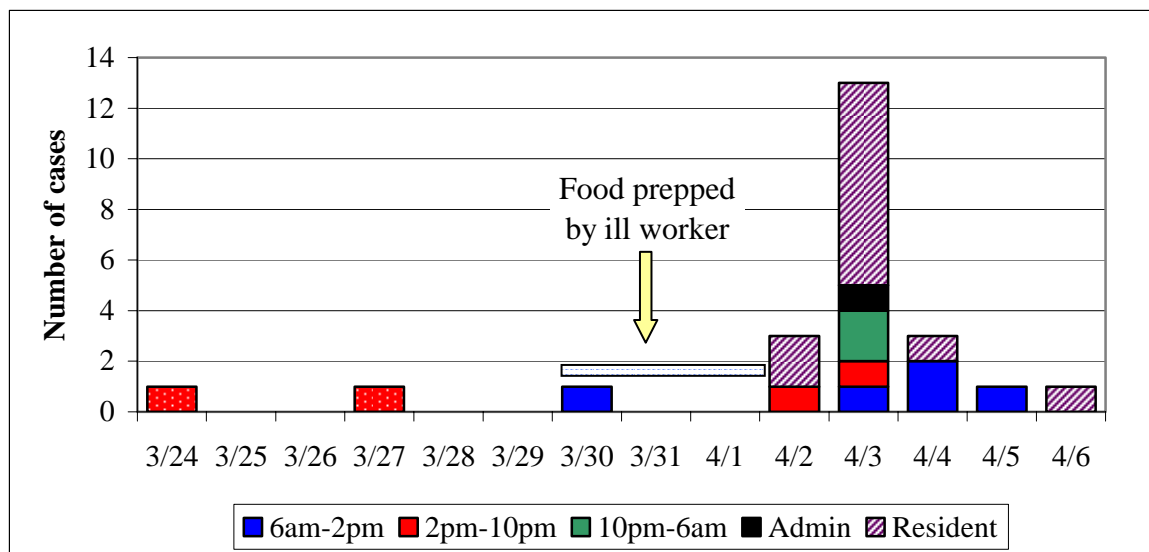
Based on the epidemiological information, several scenarios are possible for this outbreak. According to the epidemiological curve (Figure), the outbreak is a point source outbreak and a likely source could have been a staff member who prepared foods including ready-to-eat foods while ill with symptoms of diarrhea. This staff member was not trained as a food preparation worker and was filling in for another absent staff member.

Two other staff members prepared food prior to becoming ill and worked on the day of onset of symptoms. However, their dates of onset occurred at the same time as other cases in the outbreak and not prior to the outbreak.

Additionally, two staff members were ill prior to April 30 and are not a likely source of the outbreak. However, these two persons may have transmitted the organism person to person prior to the point source outbreak.

Staff members were recommended to not work while ill. Contract nurses worked along with assisted living nursing staff during the outbreak. Contract nursing staff had been instructed by their supervisor to restrict the residents to their rooms. GWLHD verified this matter with BEDP and then removed the restriction as long as the persons were able to independently maintain good hygiene practices. (Appendix 2 for definitions of isolation and quarantine according to Kansas Law)

Figure: Number of persons meeting the case definition based on onset of symptoms, Greenwood County, April 2005.



RECOMMENDATIONS

Several precautions can be taken to reduce the spread off diarrheal illness.

- Ill persons with diarrhea should not continue to work, especially in food preparation.
- All persons preparing food should have training on correct preparation, storing, and serving food.
- Proper handwashing.
- Ill persons with similar illnesses should be cohorted when possible.

SUPPORTING DOCUMENTS

EFORS form

Questionnaire

Map of facility

APPENDIX 1: Age, Gender, and Occupation of Cohort and of Ill and Non-Ill Persons

	All number (%)	Ill number (%)	Non-ill number (%)
Age (years)			
Mean	70.8	68.3	73.9
Median	83.5	67.5	83.5
Range	18-95	31-95	18-92
Gender			
Female	34 (85.0)	20 (90.9)	14 (77.8)
Male	15 (12.5)	2 (9.1)	3 (16.7)
Unknown	1 (2.5)	N/A	1 (5.5)
Occupation			
Resident	25 (62.5)	12 (54.5)	13 (72.2)
Staff	15 (37.5)	10 (45.5)	5 (27.8)
Number			
	40	22	18

*There is no statistical difference by the descriptive characteristics, between those who were ill and those who were not ill.

APPENDIX 2

Isolation: the separation, for the period of communicability, of infected persons or animals from others, in places and under conditions that prevent the direct or indirect conveyance of the infectious agents from those infected to those who are susceptible or who may spread the agent to others [K.A. R. 28-1-1(n)]

Quarantine: the limitation of freedom of movement of well persons or domestic animals that have been exposed to a communicable disease. (Authorized by and implementing K.S.A. 1981 Supp. 65-101; effective May 1, 1982.) [K. A. R. 28-1-1(q)]